CLAIMS:

1.   A method of bit stream processing in a tandem coding system (300), the method including steps of:

(a)   arranging for the system (300) to comprise a series of stages including first quantizing means for processing an input signal to generate an intermediate signal, and
5   second quantizing means for processing the intermediate signal to generate a processed output signal;

(b)   arranging for the first quantizing means to include means for predicting distortions arising in subsequent stages of the system and generating one or more corresponding quantization noise reduction parameters; and

10   (c)   applying said one or more noise reduction parameters in at least one of the subsequent stages for reducing noise and/or distortion arising within the system (300).

2.   A method according to Claim 1, wherein said one or more noise reduction parameters are derived using a cost function applicable to determine when overall
15   quantization noise is minimized.

3.   A method according to Claim 1, wherein the system (300) includes combining means arranged to embed a watermarking signal into the intermediate signal so that the processed output signal is a watermarked output signal.

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4.   A method according to Claim 3, the method further comprising a step of arranging for the first quantizing means to derive one or more parameters for controlling the combining means for reducing quantization noise arising thereat in operation.

25   5.   A method according to Claim 4, wherein the one or more parameters are derived using a cost function applicable to determine when overall quantization noise is minimized.

6.   A method according to Claim 4, wherein the combining means is arranged to at least partially decode the first intermediate signal and then embed the watermarking signal therein.

7.   A method according to Claim 1, wherein at least one of said one or more noise reduction parameters corresponds to a transcoding quantization error determined from a difference between:

(a)   quantization noise arising in the second quantizing means; and

(b)   a difference in quantization noise generated by a tandem combination of the first and second quantizing means.

8.   A method according to Claim 1, wherein at least one of the first and second quantizing means is arranged to including logarithmic signal quantizing means.

9.   A method according to Claim 1, wherein the first quantizing means is arranged to operate at a higher bit rate than the second quantizing means.

10.   A method according to Claim 1, wherein at least one of the first and second quantizing means are arranged in operation to have quantizing characteristics which are dynamically changeable in response to the nature of the input signal to the first quantizing means.

11.   A method according to Claim 1, wherein at least one of the first and second quantizing means is replaced with a multimedia signal encoding unit.

12.   A method according to Claim 11, wherein said multimedia signal is an audio signal and said encoding unit is an audio encoder.

13.   A method according to Claim 11, wherein said multimedia signal is a video signal and said encoding unit is a video encoder.

14.   A method according to Claim 11, wherein the input signal and the output signal are of mutually different format.

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15.   A method according to Claim 14, wherein the system (300) is operable to convert between MP3 and AAC signal formats and vice-versa.

16.   A system (300) for executing bit stream processing in tandem coding, wherein the system comprises a series of stages including first quantizing means for processing an input signal to generate an intermediate signal, and second quantizing means for processing the intermediate signal to generate a processed output signal, and wherein the first quantizing means is arranged to include means for predicting distortions arising in subsequent stages of the system and generating one or more corresponding quantization noise reduction parameters, and wherein the system (300) is operable to apply the one or more reduction parameters in at least one of the subsequent stages for reducing noise and/or distortion arising therein.

17.   A system (300) according to Claim 16, including combining means for embedding a watermarking signal into the intermediate signal so that the processed output signal is a watermarked output signal.